

Symposium 19: Mixed Anion Compounds for Novel Functionalities

Recently, mixed anion compounds consisting of multiple anions have attracted much attention. The use of multiple anions affords, for example, unusual local coordination around a cation in an inorganic crystal, giving greater chances to impart new materials properties as compared to conventional mono-anionic oxides or nitrides. In addition, as anions of abundant elements including hydrogen, chlorine, sulfur, phosphorus, carbon are especially focus on, the mixed anion approach is unimpeded by conventional problems of resource scarcity and distribution. The concept of the mixed anion compounds may not be restricted in inorganic crystalline solids, but expand to amorphous, non-crystalline nanomaterials, organic-inorganic hybrids, and other emerging materials. We now stand at the dawn of the mixed anion age.

This symposium will provide a forum for extensive discussion and exchange of information among researchers exploring new mixed anion compounds and their functions with 'mixing' research communities that have been divided into many narrow disciplines. The scope of the symposium will include state-of-the art methods for structural and chemical characterization such as synchrotron-based spectroscopy and diffractometry, and combined in many cases with theoretical and simulation methodologies. In addition, new methodologies for synthesis tailor-made for the mixed anion compounds will also be one of the main topics under discussion. Photocatalysis, electrocatalysis, dielectrics, fluorescent materials, magnetic materials, fast ionic conductors, thermoelectrics, superconductors, rechargeable batteries, fuel cells, and thin film based devices will be some of the main applications to be discussed.

<PROPOSED SESSION TOPICS>

- Novel approaches to synthesis such as combination of multiple techniques
- Precious control of chemical composition and atomic arrangement
- Analysis and design of crystal structure and local coordination
- Materials informatics-based material design
- Combined analyses of spectroscopy and theoretical calculation
- Theoretical approaches for understanding chemical bonding, physical properties and material functions
- Materials for energy creation and saving
- Materials for electronics and informatics

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<INVITED LECTURES>

Tentative invited lecture information is posted in the following URL;

http://www.ceramic.or.jp/pacrim13/list_of_invited_speakers.html#19